

Appl. No. 10/707,361
Amdt. Dated June 8, 2006
Reply to Office Action of March 8, 2006

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for manufacturing a light guide plate, comprising:

providing a mold;

melting a resin material and mixing an inert gas into the molten resin material, the inert gas being selected from the group consisting of noble gases and nitrogen gas;

injecting the mixture of the molten resin material and the inert gas into a cavity of the mold;

cooling the mold under a constant pressure; and

demolding and taking the light guide plate out from the mold.

Claim 2 (currently amended): The method for manufacturing a light guide plate as recited in claim 1, wherein the ~~inert~~ noble gas is one of argon (Ar), helium (He), [[or]] and neon (Ne).

Claim 3 (currently amended): The method for manufacturing a light guide plate as recited in claim 1, further comprising the step of heating the inert gas before mixing [[it]] the inert gas into the molten resin material.

Claim 4 (original): The method for manufacturing a light guide plate as recited in claim 3, wherein the inert gas is heated to a temperature in the range from 100~120°C.

Appl. No. 10/707,361
Amdt. Dated June 8, 2006
Reply to Office Action of March 8, 2006

Claim 5 (original): The method for manufacturing a light guide plate as recited in claim 4, wherein the inert gas is heated to a temperature of 110°C.

Claim 6 (original): The method for manufacturing a light guide plate as recited in claim 1, wherein when the mixture of the molten resin material and the inert gas is injected into the cavity, a viscosity of the molten resin material is in the range from 50~5000 Pa.sec.

Claim 7 (original): The method for manufacturing a light guide plate as recited in claim 6, wherein said viscosity of the molten resin is in the range from 200~1000 Pa.sec.

Claim 8 (currently amended): The method for manufacturing a light guide plate as recited in claim 1, wherein the mold is made of a metal having a high coefficient of heat transfer.

Claim 9 (original): The method for manufacturing a light guide plate as recited in claim 8, wherein the mold is made of copper, a copper alloy, or beryllium copper.

Claim 10 (original): The method for manufacturing a light guide plate as recited in claim 1, wherein the mold is made of nickel, a nickel-cobalt alloy, silicon carbide, chrome, or titanium carbide.

Claim 11 (original): The method for manufacturing a light guide plate as recited in claim 1, wherein the resin material is methacrylate resin.

Appl. No. 10/707,361
Amdt. Dated June 8, 2006
Reply to Office Action of March 8, 2006

Claim 12 (currently amended): The method for manufacturing a light guide plate as recited in claim 11, wherein a melting temperature of the ~~molten~~ methacrylate resin is in the range from 170~300°C.

Claim 13 (original): The method for manufacturing a light guide plate as recited in claim 12, wherein said temperature is in the range from 230~260°C.

Claim 14 (currently amended): A method of making an optical element via injection molding, comprising steps of:
injecting melted resin material mixed [[up]] with at least one inert gas into a mold, the inert gas being selected from the group consisting of noble gases and nitrogen gas;

cooling the mold; and
obtaining a molded optical element essentially made of resin with said at least one inert gas involved therewith, wherein said molded optical element has a smaller density than those made of resin via injection molding without any inert gas involved therewith.

Claim 15 (original): The method as described in claim 14, wherein a viscosity of said melted resin material is reduced via said at least one inert gas during molding.